

PATENT ABSTRACTS OF JAPAN

(11)Publication number : 05-251339
(43)Date of publication of application : 28.09.1993

(51)Int.Cl. H01L 21/20
// H01L 21/203

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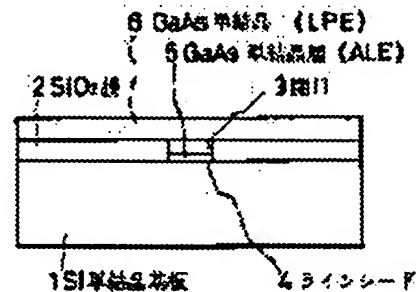
(30)Priority
Priority number : 03204231 Priority date : 14.08.1991 Priority country : JP

(54) SEMICONDUCTOR SUBSTRATE AND ITS MANUFACTURE

(57)Abstract:

PURPOSE: To provide a semiconductor substrate wherein its mechanical strength is high, its cost is low and its crystallinity is excellent regarding the semiconductor substrate and its manufacturing method which are used to grow a compound semiconductor crystal.

CONSTITUTION: An SiO₂ film 2 in which an opening 3 has been made is formed on an Si single-crystal substrate 1; a GaAs single-crystal layer 5 is grown selectively, by an ALE method, on a seed 4 which is exposed on the bottom of the opening 3; a GaAs single-crystal 6 is formed, by an LEP method, on the GaAs single-crystal layer 5. Alternatively, an SiO₂ film 2 in which an opening 3 has been made is former on an Gi single-crystal substrate 1; a selective-growth Gaps single-crystal layer 7 is formed, by a first growth condition, on a seed 4 which is exposed on the bottom of the opening 3; GaAs is deposited, by a second growth condition, on the whole surface; a nonselective-growth GaAs single-crystal layer 8 is formed on the selective-growth GaAS single-crystal layer 7; a nonselective-growth polycrystalline layer 9 is formed on the SiO₂ film 2. After that, the temperature is raised; the whole of the nonselective- growth polycrystalline layer 9 is changed to a single crystal by making use of the nonselective-growth GaAs single-crystal layer 8 as a seed.



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[Date of request for examination]
[Date of sending the examiner's decision of rejection]
[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]
[Date of final disposal for application]
[Patent number]
[Date of registration]
[Number of appeal against examiner's decision of rejection]
[Date of requesting appeal against examiner's decision of rejection]
[Date of extinction of right]